

**REMARKS**

Reconsideration and withdrawal of the objection and rejections to the application are respectfully requested in view of the amendments and remarks herein, which place the application in condition for allowance.

**I. STATUS OF THE CLAIMS AND FORMAL MATTERS**

Claims 1-32 are currently pending in this application. Claims 1-3 have been amended, new claims 30-32 have been added, and claim 4 has been cancelled, without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents.

No new matter has been added. Support for the amended recitations is found throughout the specification. Specifically, support may be found on page 7 line 13 to page 8, line 4.

It is respectfully submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited by the Examiner, and that these claims are and were in full compliance with the requirements of 35 U.S.C. §112. The amendments to the claims, as presented herein, are not made for purposes of patentability within the meaning of 35 U.S.C. §§§ 101, 102, 103 or 112. Rather, these amendments and additions are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

**II. THE OBJECTION TO THE SPECIFICATION IS OVERCOME**

The specification was objected to for containing an embedded hyperlink. The rejection is respectfully traversed. The amendment herein removes the text in question, rendering the objection moot. Consequently, reconsideration and withdrawal of the objection is respectfully requested.

**III. THE REJECTIONS UNDER §112, SECOND PARAGRAPH, ARE OVERCOME**

Claims 1-4 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. The rejection is respectfully traversed.

Specifically, the Office Action stated that the domains of claims 1 and 3 were not structurally defined, that the metes and bounds of the term “immunoglobulin-like” were not clear, and that the term “corresponds” was unclear.

Claims 1-3 have been amended, and claim 4 has been cancelled herein. Claim 1 is now directed to an isolated semaphorin protein comprising a Sema domain having at least 40% homology to amino acids 45 to 545 of SEQ ID NO: 3.

Further, the term “immunoglobulin-like” has been removed from claim 1. New claim 31 is directed to the isolated semaphorin protein of claim 1, wherein the protein includes an immunoglobulin domain. New claim 32 is directed to the isolated semaphorin protein of claim 1, wherein the protein includes a transmembrane domain. Immunoglobulin and transmembrane domains are known to one of skill in the art, such that an isolated semaphorin protein comprising a Sema domain having at least 40% homology to amino acids 45 to 545 of SEQ ID NO: 3 and further including a transmembrane or immunoglobulin domain is not indefinite, and should not be subject to further rejections under 35 U.S.C. §112, second paragraph.

Accordingly, reconsideration and withdrawal of the 35 U.S.C. §112, second paragraph rejections is respectfully requested.

#### **IV. THE REJECTIONS UNDER §112, FIRST PARAGRAPH, ARE OVERCOME**

Claims 1-4 were rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey that the inventors had possession of the present invention at the time of filing. The rejection is respectfully traversed.

Specifically, the Office Action states that with the exception of SEQ ID No: 3, one of skill in the art would not “envision the detailed chemical structure of the encompassed proteins”. Applicants respectfully disagree.

Claim 1 is now directed to an isolated semaphorin protein comprising a Sema domain having at least 40% homology to amino acids 45 to 545 of SEQ ID NO: 3. Claims 2, 3 and 30-32 depend from claim 1, such that each also contains the recitation of to an isolated semaphorin

protein comprising a Sema domain having at least 40% homology to amino acids 45 to 545 of SEQ ID NO: 3.

Accordingly, the claims have been amended to include a recitation of the precise amino acids that encompass the Sema domain of the semaphoring protein, such that the specification provides adequate description of the claimed invention and the claims as presented herein are enabled. As currently amended, the claims provide both function and homology, such that one of skill in the art, combining the knowledge in the art with the function and homology would be able to practice the instant invention. For example, one of skill in the art would be able to recognize and use a semaphorin protein having a Sema domain which is at least 40% homologous to amino acids 45 to 545 of SEQ ID NO: 3.

The Office Action states that “proteins with the degree of homology claimed encompass proteins unrelated to semaphorins.” Office Action at 6. Applicants respectfully assert that one of skill in the art would recognize that such proteins, i.e. proteins with the required degree of homology but are unrelated to semaphorins, would not be encompassed by the instant invention.

Such proteins may have the homology, but they do not have the function of the claimed proteins. Taken together with the knowledge of one of skill in the art, the claimed homology and the function of the claimed proteins, i.e. as semaphorins, allows one of skill in the art to make and use the invention, and proves that Applicants were in possession of the invention at the time of filing.

Further, the knowledge of those of skill in the art at the time of filing would allow one of skill in the art to recognize proteins of the present invention, including those containing conservative substitutions such that the function of the protein, i.e. semaphorins, is conserved. For instance, at the time of filing, one of skill in the art would have been able to reference Human Gene Mutation by Cooper and Krawczak (1993), which would provide adequate guidance and support in determining which substitutions, deletions, mutations, and the like would conserve the function of the protein.

Consequently, Applicants were clearly in possession of the invention at the time of filing as determined by one of skill in the art; and, one of skill in the art would have been able to

practice the instant invention and recognize proteins of the claimed invention based on both their homology and function.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §112, first paragraph, is respectfully requested.

**V. THE REJECTIONS UNDER §102 ARE OVERCOME**

Claims 1-4 were rejected under 35 U.S.C. §102(a) as anticipated by Ensser et al. (*J. Virology*, 1997, p. 6517-6525). Claims 1-4 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by Goodman et al. (U.S. Patent Nos. 5,935,865; 5,807,826; 5,639,856; 6,013,781; and 6,344,544). Claims 1-4 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by Raper et al. (U.S. Patent No. 5,416,197). And, claims 1-4 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by Pushel et al. (*Neuron*, vol. 14, pages 941-948, 1995). The rejections are traversed and will be addressed collectively.

The present claims are directed to an isolated semaphorin protein comprising a Sema domain having at least 40% homology to amino acids 45 to 545 of SEQ ID NO: 3. Of the documents cited by the Office Action, none of them provide a protein having at least 40% homology to amino acids 45 to 545 of SEQ ID NO: 3. The amendments herein have rendered the rejections moot.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. 102 is respectfully requested.

**REQUEST FOR INTERVIEW**

If any issue remains as an impediment to allowance, an interview, with supervisory review, is respectfully requested, prior to issuance of any paper other than a Notice of Allowance, and the Examiner is additionally respectfully requested to telephonically contact the undersigned to arrange a mutually convenient time and manner for the interview.

CONCLUSION

By this paper, this application is in condition for allowance. Favorable reconsideration of the application, reconsideration and withdrawal of the rejections of and objections to the instant application, and prompt issuance of the Notice of Allowance, or an early interview, with a view towards reaching agreement on allowance, are, therefore, all earnestly solicited.

Respectfully submitted,

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